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[0016] (Apparatus including receiver connected charger according to first embodiment) Fig. 1 is a diagram schematically illustrating the configuration of an apparatus including a receiver connected charger. In Fig. 1, an apparatus 1 including a receiver connected charger includes a receiver (home server) 3, a personal digital assistant 5, and a receiver connected charger 7. Each of the constituent elements will be described below.

[0017] (Receiver (home server)) The receiver 3 includes a broadcasting decoder 13 for receiving radio waves of a data broadcast done from a broadcasting station and converting the radio waves into an information signal (data broadcast information) and a storage 15 storing the data broadcast information. As in the present embodiment, the receiver 3 including the storage 15 is generally referred to as a home server. In this specification, the receiver 3 and the home server shall be treated as synonyms.

[0018] (Receiver connected charger) The receiver connected charger 7 includes a first interface 9 for entering the data broadcast information into the receiver connected charger 7 from the receiver 3, a charging unit 17 serving as power supply means for supplying power to the personal digital assistant 5, and a second interface 11 outputting the data broadcast information input from the first interface 9 to the personal digital assistant 5, as shown in Fig. 2.

[0019] On an abutment surface on the side of the receiver connected charger 7 between the receiver connected charger 7 and the personal digital assistant 5, there is provided, when the personal digital assistant 5 is placed on the receiver connected charger 7, pressing type placement detecting means (not shown) pressed by the own weight of the personal digital assistant 5, or an electric type placement detecting means (not shown) for detecting the placement of the personal digital assistant 5 by an electrically connected state between the personal digital assistant 5 and the receiver connected charger 7.

[0020] In the present embodiment, the first interface 9 is composed of a signal cable for connecting the receiver 3 and the receiver connected charger 7. However, the first interface 9 is not limited to a wired transmission path such as a signal cable. For example, radio or infrared communication means may be provided between the receiver 3 and the receiver connected charger 7 to constitute the receiver 3 and the receiver connected charger 7 such that the data broadcast information can be communicated by radio or infrared rays.

[0021] The second interface 11 is shaped, when the personal digital assistant 5 is a cellular phone, for example, to be connectable to a connector provided on a lower end surface of the cellular phone and to integrally include positive and negative terminals for supplying power to the cellular phone.

[0022] The power supply means (charging unit) 17 includes a 100 volt ac outlet used in general households, a conversion

unit (not shown) for converting AC electricity supplied from the outlet into DC electricity for the personal digital assistant 5, and a terminal unit (not shown) including a terminal making the DC electricity to flow through the personal digital assistant 5, and supplies power to a secondary battery in the personal digital assistant 5, described later.

[0023] (Personal digital assistant) The personal digital assistant 5 includes a storage 19 storing transferred data broadcast information, a browser 21 including a CPU for controlling the personal digital assistant 5, a ROM containing basic system software, a RAM storing profile data of a user (personal information of a user individual settable by the user and data relating to its taste), a display operation unit 23 for displaying data broadcast information, for example, for a user of the personal digital assistant 5 and operated when the user of the personal digital assistant 5 uses the personal digital assistant 5, and a secondary battery 25 storing driving power for driving the personal digital assistant 5.

[0024] Furthermore, the personal digital assistant 5 includes a connection unit that can be connected to the second interface 11 in the receiver connected charger 7.

[0025] The browser 21 in the personal digital assistant 5 includes a file (not shown) for extracting the required data broadcast information from the data broadcast information by the user of the personal digital assistant 5 based on the profile data.

[0026] Generally, the user of the personal digital

assistant 5 does not necessarily require all the data broadcast information. The required information differs depending on characters, hobbies, tastes, and so on of individuals. Furthermore, a data broadcast is done with an identification signal for identifying the data broadcast information, such as an ID signal, a program name, or a genre, added to each information. The filter selects the identification signal for identifying each information according to profile data such as a program reserved by the user of the personal digital assistant 5 and a favorite genre, extracts the data broadcast information judged to be required, and stores the information extracted by the filter in the storage 19 in the personal digital assistant 5.

[0027] A manner of use of the filter will be described below. ① The receiver 3 stores in the storage 19 in the personal digital assistant 5 all the data broadcast information stored in the storage 15 after extracting the necessary data broadcast information based on profile data when all the data broadcast information is input to the personal digital assistant 5 from the second interface 11 in the receiver connected charger 7 through the receiver connected charger 7.

[0028] The case ① has the advantage in that profile data of a user does not leak out of the personal digital assistant 5 because it is processed within the personal digital assistant 5.

[0029] ② Prior to transferring the data broadcast information from the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7, the

profile data is transmitted from the personal digital assistant 5 to the receiver 3 through the receiver connected charger 7. In the receiver 3, the profile data and ID signals included in all the received data broadcast information are compared with each other, to extract the necessary data broadcast information, and only the extracted information is transferred from the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7 and is stored in the storage 19.

[0030] The case ② has the possibility that the profile data of the user may leak out of the personal digital assistant 5 but has the advantage in that the amount of information transferred from the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7 can be small because the profile data is transmitted from the personal digital assistant 5 to the receiver 3 through the receiver connected charger 7.

[0031] ③ Prior to transferring the data broadcast information from the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7, only a part of the profile data (e.g., data that may leak out of the personal digital assistant 5) is transmitted from the personal digital assistant 5 to the receiver 3 through the receiver connected charger 7, and the receiver 3 extracts the information based on the part of the profile data, and transfers only the extracted information from the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7. In the personal digital assistant 5, only the necessary data broadcast information is further

extracted from the data broadcast information transferred through the receiver connected charger 7 based on the remaining part of the profile data, and is stored in the storage 19 in the personal digital assistant 5.

[0032] The case ③ has the advantage in that an important part of the profile data of the user (the remaining part of the profile data) does not leak out of the personal digital assistant 5, though the amount of information to be transferred becomes larger than that in the case ② because only a part of the profile data (the data that may leak out of the personal digital assistant 5) is transmitted to the receiver 3 from the personal digital assistant 5 through the receiver connected charger 7, and the receiver 3 extracts the data broadcast information based on the part of the profile data and transfers only the extracted information from the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7.

[0033] ④ The receiver 3 previously receives the profile data from the personal digital assistant 5, stores only the necessary data broadcast information in the received data broadcast information in the storage 15 in the receiver 3 based on the profile data, transfers the data broadcast information from the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7, and stores the transferred information in the storage 19 in the personal digital assistant 5.

[0034] When the plurality of personal digital assistants 5 is utilized for the apparatus 1 including the receiver connected charger 7, the receiver 3 constructs new profile

data from the plurality of profile data, and stores the data broadcast information in the storage 15 in the receiver 3 based on the new profile data.

[0035] The case ④ has the advantage in that the necessary data broadcast information can be stored in the storage 15 by narrowing down the data broadcast information previously stored even when the amount of data broadcast information done from a broadcasting station exceeds the amount of information storable in the storage 15 in the receiver 3.

[0036] (Flow of data broadcast information until storage of information in personal digital assistant) The flow of data broadcast information until storage of the information in the personal digital assistant 5 will be then described.

[0037] The data broadcast information is transmitted by a data broadcast from the broadcasting station, and the data broadcast information received by the receiver 3 is stored in the storage 15. When the receiver 3 does not include the storage 15, however, the receiver 3 transfers the information from the broadcasting decoder 13 to the storage 19 in the personal digital assistant 5 through the receiver connected charger 7 in real time during the data broadcast.

[0038] The data broadcast information stored in the storage 15 in the receiver 3 is held until the information is transferred to the personal digital assistant 5. The receiver starts to transfer, when placement detecting means (not shown) in the receiver connected charger 7 detects that the personal digital assistant 5 is placed on the receiver connected charger 7, the data broadcast information from the storage 15 in the receiver 3 to the personal digital

assistant 5.

[0039] The data broadcast information is stored in the storage 19 in the personal digital assistant 5 through the storage 15 in the receiver 3, the first interface 9, and the second interface 11 in this order.

[0040] In the present embodiment, when the personal digital assistant 5 is placed on the receiver connected charger 7, power is supplied to the personal digital assistant 5 from the receiver connected charger 7 while the data broadcast information is transferred from the storage 15 in the receiver 3 to the personal digital assistant 5 through the receiver connected charger 7 and is stored in the storage 19 in the personal digital assistant 5. In this case, the user of the personal digital assistant 5 can store only the data broadcast information required by the user in the personal digital assistant 5 using a filter previously set such that only the data broadcast information required by the user is extracted. Therefore, the user of the personal digital assistant 5 can store only the data broadcast information required by the user in the storage 19 in the personal digital assistant 5 without requiring a complicated operation by only an operation for placing the personal digital assistant 5 on the receiver connected charger 7, and can utilize the necessary data broadcast information when carrying the personal digital assistant 5.

[0041] (Data broadcasting system utilizing apparatus including personal digital assistant and receiver connected charger) A data broadcasting system utilizing the apparatus 1 including the personal digital assistant 5 and the

receiver connected charger 7 in the first embodiment shown in Fig. 2 does a data broadcast in a concentrated manner from the broadcasting station in a time zone (at night) during which the personal digital assistant 5 is expected to be charged by the receiver connected charger 7. The data broadcast information stored in the storage 15 in the receiver 3 during the night is transferred to the personal digital assistant 5 through the receiver connected charger 7, and is stored in the storage 19 in the personal digital assistant 5.

[0042] Thus, the user of the personal digital assistant 5 places the personal digital assistant 5 on the receiver connected charger 7 every night and charges the personal digital assistant 5 so that new data broadcast information is stored in the storage 19 in the personal digital assistant 5 for each night. Therefore, the user of the personal digital assistant 5 can utilize the newest data broadcast information in units of at least one day when carrying the personal digital assistant 5.

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[Fig. 2] Fig. 2 is a block diagram illustrating a first embodiment of an apparatus including a receiver connected charger.

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[FIG. 2]

1... apparatus including a receiver connected charger includes
a receiver (home server), a personal digital assistant, and
a receiver connected charger
3... receiver (home server)
5... personal digital assistant
7... receiver connected charger
9... first interface
11... second interface
13... broadcasting decoder
15... storage
17... charging unit
19... storage
21... browser
23... display operation unit
25... secondary battery

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